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June 14, 2004

Date of Signature

Re: Patent Application of: Ristanovic
Serial No.: 09/272,471
Filed: March 19, 1999
For: Exchange, Scheduling and Control
System for Electrical Power
Group Art Unit: 3629
Examiner: Igor N. Borissov
Our Docket No.: 1998P7523US01 (1806-0002)

TRANSMITTAL OF BRIEF ON APPEAL

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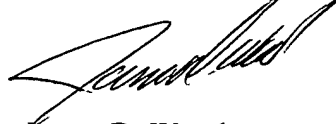
1. Original of the Brief On Appeal;
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Respectfully Submitted,

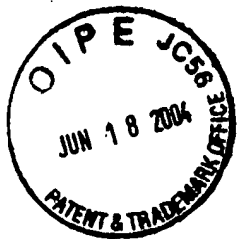
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BRIEF ON APPEAL

Sir:

This is an appeal under 37 CFR § 1.191 to the Board of Patent Appeals and Interferences
of the United States Patent and Trademark Office from the final rejection of claims 1-20 of the
above-identified patent application. These claims were indicated as finally rejected in an Office
Action dated January 12, 2004. Three copies of the brief are filed herewith, together with the
\$330.00 fee required under 37 CFR § 1.17(c). Also, please provide any extensions of time that

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may be necessary and charge any fees that may be due to Account No. 12-2252, but not to include any payment of issue fees.

(1) REAL PARTY IN INTEREST

Siemens Energy Management Inc. is the owner of this patent application, and therefore is the real party in interest.

(2) RELATED APPEALS AND INTERFERENCES

There are no appeals or interferences related to this patent application.

(3) STATUS OF CLAIMS

Claims 1-20 are pending in the application.

Claims 1-20 stand finally rejected and form the subject matter of this appeal.

Claims 1-20 are shown in the Appendix attached to this Appeal Brief.

(4) STATUS OF AMENDMENTS

Appellant has filed no amendments subsequent to the final rejection contained in the Office Action mailed January 12, 2004.

(5) SUMMARY OF THE INVENTION

The present invention relates to the field of electrical power generation and distribution.

Claim 1 is directed to an energy market system that includes a user interface and an energy scheduling subsystem. (See e.g. FIG. 1). The participants in the energy market system

include power generators and power consumers. (Page 2, line 32 through page 3, line 3). In accordance with one embodiment of the invention, a multi-settlement system (MSS) is used to develop a forward looking schedule based upon energy bid prices and desired and available quantities of energy, while coordinating the schedule with the requirements of reliable power system operation. (Page 3, lines 14-18).

The MSS functions to develop a day-ahead and an hour-ahead supply and demand schedule. (Page 12, lines 15-19). As shown in FIG. 4, the MSS establishes a "case" at step 401. A "case", in one non-limiting embodiment, includes information concerning the energy generation and delivery system such as a breaker oriented model of the transmission network, real-time contingency lists, outage information, status of generation equipment, transmission limits, branch ratings, transfer interface limits, and other information. (Page 14, line 19 through page 15, line 18). An energy management system (EMS) may be used to provide modeling information used in creating the case. (Page 14, lines 11-18). The model in one embodiment is a detailed network model including network configuration information (e.g. switch positions) as well as the status of logical devices, transformers, and phase-shifter tap positions. (Page 5, lines 22-29).

After creating the case, in one embodiment, a unit commitment procedure is executed. (FIG. 1, step 403). The unit commitment procedure determines the most economical start up and shut down times for power generating units (e.g. combustion, steam, and nuclear based generators) as well as the required operating level of the units in order to ensure sufficient power is available to meet predicted needs as well as to provide reserve margins. (Page 32, lines 13-22 and page 33, lines 8-11). The reserve margins are intended to meet uncertainties in the forecasted load as well as to cover equipment failure. (Page 33, lines 8-11). Input to the unit

commitment procedure may include unit status and constraints. (Page 34, lines 8-11). One such constraint may be the maximum allowed change in unit output power between adjacent timeframes, referred to as a ramp rate. (Page 35, lines 10-14).

The unit commitment procedure, in one non-limiting example, generates output results that include 1) the power generation units that the unit commitment procedure has determined are committed to fulfill the energy needs, 2) the generation level of each of the committed units, 3) the utilization of interchange transactions, and 4) the interchange power of each transaction. (Page 42, lines 6-13). The unit commitment procedure may further provide output production costs, fuel consumption and costs, start-up costs, and operating and maintenance costs. (Page 42, lines 14-18).

After the unit commitment procedure generates a schedule, a security analysis procedure is performed. (Fig. 1, step 405). The security analysis procedure simulates one or more contingency cases and identifies any violations of system requirements resulting from the simulation. (Page 16, lines 21-24). The contingencies that may be assessed include outages of lines, transformers, phase-shifters and/or series devices, generator unit outages, load element outages, shunt capacitor/reactor outages and switching device changes. (Page 22, lines 16-23).

After each contingency has been evaluated, it is determined whether or not any violations occurred. (Fig. 1, step 407). In the event violations occurred, a security constrained optimal power flow procedure is carried out. (Page 17, lines 6-10). The security constrained optimal power flow procedure operates to reduce or eliminate the identified violations, while minimizing the total energy generation price. (Page 43, lines 15-21). If a solution is generated by the security constrained optimal power flow procedure, then the solution is re-evaluated by the security analysis procedure. (Page 17, lines 16-18).

Once a unit commitment schedule is developed that does not produce any violations, a locational marginal price (LMP) function is executed. The LMP determines the energy cost associated with the schedule. The LMP function includes the marginal price of power generation and the marginal cost of transmission constraints. (Page 51, line 28 through page 52, line 4). The calculation may take into consideration the effect of transmission losses. (Page 52, lines 6-11).

In accordance with another embodiment of an energy market system, an energy transmission rights auction subsystem is provided. The energy transmission rights auction subsystem may be used to purchase and sell Fixed Transmission Rights (FTRs). (Page 57, lines 22-23). An FTR is a financial instrument that allows its owner to transfer power over a transmission line for a specific price, without incurring congestion charges that might otherwise apply. (Page 57, lines 19-22).

The energy transmission rights auction subsystem includes a case setup function. (Page 60, lines 13-17). The case setup function establishes a case using various data. (Page 60, lines 22-24). The data may include load conditions, FTR bid information, branch ratings, transfer interface limits, and outages. (Page 61, lines 6-19). The data may further include a breaker oriented model of the power system. (Page 61, lines 20-23). Bus injections from external the area being evaluated are also determined along with bus injections internal to the area being evaluated. (Page 61, line 31 through page 62, line 3).

Next, a simultaneous feasibility test is executed. (Page 62, lines 4-7). This test establishes an initial DC power flow solution based upon the external and internal bus injections. (Page 62, lines 11-15, FIG. 6, step 901). An optimization may be performed on the resultant solution. (Page 62, lines 28-30). The optimization may include the consideration of various

constraints including the capacity of the FTRs being bid, limits on branches in the network, limits on transfer interfaces, and limits on the flow in branches under contingency conditions. (Page 63, lines 9-14).

If the energy transmission rights auction subsystem determines a feasible solution, then a security analysis procedure is executed. (Page 65, lines 3-6, FIG. 6, step 909). The security analysis procedure functions in a manner similar to the function of the security analysis procedure described above for the MSS. (Page 65, lines 7-9). Any violations found by the security analysis procedure are attempted to be resolved by the optimization procedure. (Page 67, lines 15-19, FIG. 6, step 911). Once all violations have been handled, the pricing of the FTRs is carried out. (Page 67, lines 20-23).

After the pricing of the FTRs is complete, a post-processing procedure is executed. (Page 68, lines 18-19). The post processing procedure transfers the results of the auction to the FTR database and an accounting database. (Page 68, lines 20-22). Market participants can view the results stored in the FTR database on the Web. (Page 68, lines 22-25).

(6) ISSUES

Whether claims 1-8 and 10-20 are unpatentable under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 6,047,274 to Johnson et al. (hereinafter “Johnson”).

Whether claim 9 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Johnson in view of U.S. Patent No. 6,021,402 to Takriti (hereinafter “Takriti”).

(7) GROUPING OF CLAIMS

The claims do not all stand or fall together.

Claims 1, 3, 4, and 5 form a first separately patentable group which is argued independently of the other claims for purposes of this appeal.

Claims 2, 7 and 8 form a second separately patentable group which is argued independently of the other claims for purposes of this appeal.

Claim 6 forms a third separately patentable group which is argued independently of the other claims for purposes of this appeal.

Claim 9 forms a fourth separately patentable group which is argued independently of the other claims for purposes of this appeal.

Claims 10, 13 and 15 form a fifth separately patentable group which is argued independently of the other claims for purposes of this appeal.

Claim 11 forms a sixth separately patentable group which is argued independently of the other claims for purposes of this appeal.

Claims 12 and 16 form a seventh separately patentable group which is argued independently of the other claims for purposes of this appeal.

Claim 14 forms an eighth separately patentable group which is argued independently of the other claims for purposes of this appeal.

Claims 17 and 20 form a ninth separately patentable group which is argued independently of the other claims for purposes of this appeal.

Claim 18 forms a tenth separately patentable group which is argued independently of the other claims for purposes of this appeal.

Claim 19 forms an eleventh separately patentable group which is argued independently of the other claims for purposes of this appeal.

(8) ARGUMENT**First Claim Grouping:****Claims 1, 3, 4, and 5 Are Not
Obvious Over Johnson***Discussion re: Patentability of Claim 1*1. Claim 1

Claim 1 recites the following limitations:

1. An energy market system associated with an energy generation and delivery system, the energy market system comprising:
 - a market user interface, the market user interface exchanging market information with a plurality of market participants; and
 - an energy scheduling subsystem, the energy scheduling subsystem scheduling generation and delivery of energy among market participants in accordance with the market information and in accordance with information relating to the energy generation and delivery system.

Claim 1 thus requires an energy scheduling subsystem that schedules energy generation among market participants and that schedules delivery of energy. Both energy generation scheduling and energy delivery scheduling is based upon both market information and information relating to the energy generation and delivery system.

2. The Proposed Modification Does Not Arrive at the Claimed Invention

In the January 12, 2004 Office Action (the “Office Action”), the Examiner alleged that Johnson disclosed “an energy scheduling apparatus” in the form of the “Moderator”. (Office Action at p. 2). The Examiner further stated that the “energy scheduling apparatus” included the claimed features of the energy scheduling subsystem, citing to various portions of Johnson in support of this allegation. (Id. at p. 2). The Examiner then argued that it would be obvious to modify the Moderator to include a subsystem since the teachings of Johnson “would perform the invention as claimed by the applicant either with specifically mentioning the energy scheduling

subsystem, or not.” (Id. at p. 3). However, as will be discussed below, the Moderator does not perform the claimed scheduling activities. As a consequence, the modification proposed by the Examiner does not arrive at the invention claimed in claim 1. Instead, at best, various scheduling activities are performed by disparate parties and/or disparate systems.

In particular, the “Moderator” of Johnson is a “bidding moderator”. (Johnson at column 6, lines 4-9). Johnson teaches an auction service wherein entities that generate energy (“Providers”) can bid to supply energy to end users of energy. (Id. at Abstract). Accordingly, the Moderator accepts bids from Providers and sorts the bids according to established rules. (Id. at column 9, lines 15-25). The Moderator further transmits information to the Providers concerning the bids submitted by other Providers. (Id. at column 9, lines 25-30). The bid information is also routed to control computers. (Id. at column 9, lines 30-34). The control computers evaluate the received bids, and select a Provider that will be used to provide the energy needed by the end users. (Id. at column 9, lines 34-40). The Moderator may be used as a control computer. (Id. at column 9, lines 41-45). After a Provider has been selected, then the individual *Provider* schedules delivery of energy to the end user’s distribution company. (Id. at column 15, lines 53-60). The Provider is thus empowered to manage its own power generation and/or power provisioning activities. (Id. at column 7, lines 30-34).

The Examiner claimed to find the scheduling function of claim 1 in Johnson at column 3, line 59 through column 4, line 4; column 11, lines 26-29, column 12, lines 26-29, column 15, lines 53-64 and column 16, lines 47-58. (Office Action at p. 2). These passages do not support the Examiner’s contentions, and will be addressed in sequence. At column 3, line 59 through column 4, line 4, Johnson discloses that in a wholesale market, the *seller* schedules energy transfer to an agreed transfer point and the *buyer* schedules the energy transfer from the agreed

transfer point to the end user. The Moderator is *not* a seller or a buyer.

At column 11, lines 26-29, Johnson discloses that a properly submitted bid to the Moderator may be required to include a period of time during which energy will be available for transfer. A requirement of making energy available in a general sense for a period of time cannot reasonably be equated with performance of scheduling. Rather, this information is needed in the system of Johnson so as to assign the bid to the proper block (see e.g. Johnson at column 12, lines 8-11).

At column 12, lines 26-29, Johnson discloses that the *Provider* is supposed to perform scheduling activities during a protection interval in the bidding timeline. Obviously, an energy Provider is not the Moderator. At column 15, lines 53-64, Johnson states that “[i]f a Provider is selected as the winning bidder, the Provider will be responsible to schedule the delivery of its power....” Again, an energy Provider is not the Moderator. Finally, at column 16, lines 47-58, Johnson discloses that a Provider may use information received from the Moderator in determining the amount of power to be delivered to a delivery destination. Once again, an energy Provider is not the Moderator. Accordingly, it is clear that to the extent that any scheduling of energy generation and delivery is taught by Johnson, the scheduling is accomplished by the individual *Provider*. The Moderator simply does not perform this function.

Clearly, the Moderator does not schedule generation or delivery of energy. The Moderator is simply used to enable an energy auction. The Examiner has proposed modifying the Moderator to include an “energy scheduling subsystem”. However, the Examiner merely proposes moving some functionality allegedly provided by the Moderator into a subsystem so named. (See Office Action at p. 3). The Examiner has not proposed the addition of any functionality to the Moderator. Accordingly, the proposed “modification” is nothing more than

grouping functionality that the Examiner alleges to already be present in the Moderator into a subsystem.

Because the Moderator does not include the claimed features of scheduling energy generation and energy delivery, the modification of the Moderator as proposed by the Examiner, to include a subsystem called an energy scheduling subsystem, bereft of any identified scheduling functionality, does not arrive at Appellant's invention of claim 1. Thus, the proposed modification of Johnson does not establish a *prima facie* case of obviousness under 35 U.S.C. § 103 with regard to the invention defined in claim 1. As a result, claim 1 is allowable over Johnson. Accordingly, the Board of Appeals is respectfully requested to reverse this rejection of claim 1.

3. The Scheduling of Johnson Is Not Scheduling as Claimed

Notwithstanding the rather obvious mischaracterization of the Moderator by the Examiner, Johnson does disclose, at least in a cursory and/or inferential fashion, that scheduling of energy generation and delivery is needed. However, the scheduling disclosed in Johnson is done *by* individual participants, not *among* the participants as claimed.

As stated above, claim 1 requires an energy scheduling subsystem that schedules energy generation *among market participants*. Accordingly, a single subsystem must schedule the energy generation of at least two participants. Johnson clearly teaches, however, that power generation of each participant is completely within the control of the individual participant. (See e.g. Johnson at column 7, lines 30-34). Therefore, to the extent that there is any scheduling of power generation, it is clear that the scheduling is being accomplished by individual Providers for individual Providers. There simply is no teaching of scheduling energy generation *among* the

Providers.

Therefore, even when giving Johnson the broadest reasonable reading, Johnson does not teach scheduling as claimed. Accordingly, Johnson does not arrive at Appellant's invention of claim 1. Thus, the proposed modification of Johnson does not establish a prima facie case of obviousness under 35 U.S.C. § 103 with regard to the invention defined in claim 1. As a result, claim 1 is allowable over Johnson. Accordingly, the Board of Appeals is respectfully requested to reverse this rejection of claim 1.

4. Conclusion as to Claim 1

For all of the above reasons, it is respectfully submitted that the Examiner has failed to present a prima facie case of obviousness for claim 1 under 35 U.S.C. 103(a). Accordingly, the Board of Appeals is respectfully requested to reverse the rejection of claim 1.

Discussion re: Patentability of Claims 3, 4 and 5

Claims 3, 4 and 5 stand rejected as allegedly being obvious in view of Johnson. Claims 3, 4 and 5 depend from and incorporate all of the limitations of claim 1. Accordingly, for at least the same reasons as those set forth above in connection with claim 1, it is respectfully submitted that the proposed modification of Johnson does not arrive at the invention of claim 3, claim 4 or claim 5. Accordingly, the Board of Appeals is respectfully requested to reverse this rejection of claims 3, 4 and 5.

Second Claim Grouping:**Claims 2, 7 and 8 Are Not
Obvious Over Johnson***Discussion re: Patentability of Claim 2*1. Claim 2

Claim 2 recites the following limitations:

2. The energy market system of claim 1, wherein the energy scheduling subsystem includes:
 - a unit commitment function, the unit commitment function selecting energy generating units for operation in the energy generation and delivery system;
 - a security analysis function, the security analysis function analyzing the energy generation and delivery system under one or more contingency conditions and with the energy generation units selected for operation; and
 - an optimal power flow function, the optimal power flow function determining a configuration of the energy generation and delivery system so as to operate in a secure mode under none and each one of the contingency conditions.

Claim 2 thus requires an energy scheduling subsystem that selects generating units for operation, that analyzes one or more contingency situations that affect the selected generating units and/or the delivery system, and that determines an optimal configuration for various energy generation and delivery system component availabilities.

2. Claim 2 Includes the Limitations of Claim 1

Claim 2 depends from and incorporates all of the limitations of claim 1. Accordingly, for at least the same reasons as those set forth above in connection with claim 1, it is respectfully submitted that the proposed modification of Johnson does not arrive at the invention of claim 2. Accordingly, the Board of Appeals is respectfully requested to reverse this rejection of claim 2.

3. Johnson Does Not Disclose a Unit Commitment Function

In the Office Action, the Examiner alleged that Johnson disclosed a unit commitment

function citing to Johnson at column 13, lines 42-47, column 15, lines 28-32 and column 16, lines 47-58. (Office Action at p. 3). The Examiner then proposed to modify Johnson by modifying an “action (sic) rules function”. (Office Action at p. 4). The Examiner has mischaracterized Johnson.

As claimed, the unit commitment function is a portion of the energy scheduling subsystem that selects specific power generation units for operation. Johnson at column 13, lines 42-47 discusses increasing or decreasing bid prices to encourage or discourage future energy delivery commitments as part of the bidding process. There is absolutely no discussion of the *operation* of particular power producing units. At column 15, lines 28-32, Johnson discusses bidding rules that may affect selection of Providers, such as a rule stating that only one Provider will be selected to supply a particular end user. Again, there is absolutely no discussion of the *operation* of particular power producing units.

Finally, at column 16, lines 47-58, Johnson mentions that a Provider can eventually optimize its generating or production capacity. This at least infers that some activity may be occurring to energize or de-energize, and thus to supposedly “select for operation, power generating units. However, the discussion of this energizing and de-energizing is in the context of a Provider’s response to obtaining meter readings of actual power consumption. The discussion does not relate to scheduling activities. Of course, since there is no discussion of scheduling activities, there can be no discussion of a scheduling system that identifies power units to be committed.

The proposed “action (sic) rules function” modification is no modification at all as is discussed below and, in any event, is not relevant to any teaching in Johnson regarding unit commitment. Because Johnson does not disclose the claimed feature of a unit commitment

function that is a portion of the energy scheduling subsystem and the modification of Johnson to include “an action (sic) rules function” does not cure this defect, the proposed modification of Johnson does not arrive at Appellant’s invention of claim 2. Therefore, the proposed modification of Johnson does not establish a prima facie case of obviousness under 35 U.S.C. § 103 with regard to the invention defined in claim 2. As a result, claim 2 is allowable over Johnson. Accordingly, the Board of Appeals is respectfully requested to reverse this rejection of claim 2.

4. The Proposed Modification Does Not Arrive at the Claimed Invention

In the Office Action, the Examiner alleged that Johnson disclosed “an action (sic) rules function” that performed all of the functions of the claimed “security analysis function” citing to Johnson at column 15, lines 32-40. (Office Action at p. 3). The Examiner then proposes modifying the “action (sic) rules” to include a security analysis function. The Examiner has mischaracterized Johnson.

Johnson at column 15, lines 32-40, discusses auction rules that may be established to specify that all power to a particular end user must be provided by a single Provider. Johnson does mention in this passage that a “default Provider” may be identified to cover any shortfall in the event the winning bidder cannot provide all of the power. (Johnson at column 15, lines 28-32). The “shortfall” in this passage, however, refers to a situation wherein a user has opted to select a provider that has placed a bid for less than 100% of the end user’s needs. In such an event, the user can still select the Provider, and obtain the rest of its needs from a default Provider. (Id. at column 15, lines 32-40). Thus, there is no mention whatsoever of any *contingency* that has caused a shortfall. Moreover, the only analyses being performed is a

comparison of the amount of energy that a Provider is bidding to supply with the amount of energy that a buyer is looking for. This cannot reasonably be described as an analysis of “contingency conditions”.

The Examiner has proposed modifying rules under which the auction of Johnson is conducted to include a “security analysis function”. However, the Examiner merely proposes re-naming some functionality allegedly provided by the auction rules. (See Office Action at p. 4). The Examiner has not proposed the addition of any functionality to the auction rules. Accordingly, the proposed “modification” is not a modification at all.

Therefore, Johnson does not disclose the claimed feature of a security analysis function that is a portion of the energy scheduling subsystem and the modification of Johnson to include the name “security analysis function” does not cure this defect. Therefore, the proposed modification of Johnson does not arrive at Appellant’s invention of claim 2. Thus, the proposed modification of Johnson does not establish a prima facie case of obviousness under 35 U.S.C. § 103 with regard to the invention defined in claim 2. As a result, claim 2 is allowable over Johnson. Accordingly, the Board of Appeals is respectfully requested to reverse this rejection of claim 2.

5. Johnson Does Not Disclose an Optimal Flow Function

In the Office Action, the Examiner further alleged that Johnson disclosed an optimal power flow function citing to Johnson at column 16, lines 53-56. (Office Action at p. 3). The Examiner has mischaracterized Johnson.

As claimed, the optimal power flow function is a portion of the energy scheduling subsystem that determines a configuration for the energy generation and delivery system that

operates in secure mode during contingency conditions. Johnson at column 16, lines 53-56, merely discusses potential optimization of production capacity and/or energy buying and selling based upon meter readings of actual energy consumption. There is no mention or suggestion of any contingency condition whatsoever. The Examiner's characterization of Johnson as including an optimal power flow function is simply not supported by any teaching of Johnson.

Moreover, as discussed above, the Examiner's proposed change in the rules of Johnson's auction does not cure this defect because the proposed modification still lacks any consideration of contingency conditions. Therefore, Johnson does not disclose the claimed feature of optimal power flow function as claimed and the modification of Johnson's auction rules does not cure this defect. Therefore, the proposed modification of Johnson does not arrive at Appellant's invention of claim 2. Thus, the proposed modification of Johnson does not establish a prima facie case of obviousness under 35 U.S.C. § 103 with regard to the invention defined in claim 2. As a result, claim 2 is allowable over Johnson. Accordingly, the Board of Appeals is respectfully requested to reverse this rejection of claim 2.

6. Conclusion as to Claim 2

For all of the above reasons, it is respectfully submitted that the Examiner has failed to present a prima facie case of obviousness for claim 2 under 35 U.S.C. 103(a). Accordingly, the Board of Appeals is respectfully requested to reverse the rejection of claim 2.

Discussion re: Patentability of Claims 7 and 8

Claims 7 and 8 stand rejected as allegedly being obvious in view of Johnson. Claims 7 and 8 depend from and incorporate all of the limitations of claim 2. Accordingly, for at least the

same reasons as those set forth above in connection with claim 2, it is respectfully submitted that the proposed modification of Johnson does not arrive at the invention of claim 7 or of claim 8. Accordingly, the Board of Appeals is respectfully requested to reverse this rejection of claims 7 and 8.

Third Claim Grouping:

Claim 6 is Not Obvious Over Johnson

Discussion re: Patentability of Claim 6

1. Claim 6

Claim 6 recites the following limitations:

6. The energy market system of claim 1, wherein the information relating to the energy generation and delivery system includes a model of the energy generation and delivery system.

Claim 6 thus requires the information used by the energy scheduling subsystem to include a model of the energy generation and delivery system.

2. Claim 6 Includes the Limitations of Claim 1

Claim 6 depends from and incorporates all of the limitations of claim 1. Accordingly, for at least the same reasons as those set forth above in connection with claim 1, it is respectfully submitted that the proposed modification of Johnson does not arrive at the invention of claim 6. Accordingly, the Board of Appeals is respectfully requested to reverse this rejection of claim 6.

3. Johnson Does Not Disclose a Model As Claimed

In the Office Action, the Examiner alleged that Johnson taught a “method and system, wherein information relating to the energy generation and delivery system is used for

optimization of energy generation and delivery” citing to Johnson at column 16, lines 53-56. (Office Action at p. 4). The Examiner then appears to claim that since Johnson taught optimization, it would be obvious to use a model to perform the optimization. (Id. at p. 4). The proposed modification does not arrive at the invention of claim 6.

Contrary to the Examiner’s characterization, the “model” element of the present claim does not recite any limitation dealing with “optimization of energy generation and delivery”. The limitation of the model element is that a schedule generated by the energy scheduling subsystem be in accordance with information that includes a model. Therefore, this element requires a listing of future events to be generated by an energy scheduling subsystem using a model. The passage cited by the Examiner does not teach a listing of future events generated using a model.

The Examiner based his rejection upon Johnson at column 16, lines 53-56, wherein “energy usage feedback” is discussed. The definition of “energy usage feedback” is provided in the preceding section of Johnson. Specifically, the “energy usage feedback” is nothing more than an accumulation of actual meter readings. These meter readings are disclosed as being provided to the Moderator (Johnson at column 16, lines 37-41), which the Examiner has proposed to include an energy scheduling subsystem.

However, the meter readings are not used by the Moderator to generate a schedule. Rather, the readings are merely processed and passed on, such as in a summary of the historical power consumption of a particular end user. (Id. at column 16, lines 47-50). Therefore, even assuming *arguendo* that the historical data readings can be called a “model”, it is clear that the Moderator of Johnson, which the Examiner claims to include energy scheduling subsystem, does not generate a listing of future events using the meter readings. Rather, the Moderator only uses the meter readings to generate a listing of the historical meter readings. A listing of *historical*

data cannot be a listing of *future events* generated using the historical data.

Finally, the proposed modification of Johnson does not cure the defects of Johnson with respect to the “model” limitation. The Examiner has proposed “providing a model” because the teachings of Johnson “would perform the invention as claimed”. (Office Action at pages 5-6). While the Examiner’s argument is difficult to comprehend, it is clear that the proposed modification does not provide a schedule that is generated using a model. Therefore, regardless of the interpretation given the Examiner’s reasoning, the modification does not arrive at the invention of claim 6.

Therefore, Johnson does not disclose the claimed feature of information including a model, and the proposed modification of Johnson does not cure this defect. Therefore, the proposed modification of Johnson does not arrive at Appellant’s invention of claim 6. Thus, the proposed modification of Johnson does not establish a prima facie case of obviousness under 35 U.S.C. § 103 with regard to the invention defined in claim 6. As a result, claim 6 is allowable over Johnson. Accordingly, the Board of Appeals is respectfully requested to reverse this rejection of claim 6.

4. Conclusion as to Claim 6

For all of the above reasons, it is respectfully submitted that the Examiner has failed to present a prima facie case of obviousness for claim 6 under 35 U.S.C. 103(a). Accordingly, the Board of Appeals is respectfully requested to reverse the rejection of claim 6.

Fourth Claim Grouping:**Claim 9 is Not Obvious
Over Johnson in View of Takriti***Discussion re: Patentability of Claim 9*1. Claim 9

Claim 9 recites the following limitations:

9. The energy market system of claim 2, wherein an input to the optimal power flow function includes a ramping constraint of a power generation unit.

Claim 9 thus requires that input to the optimal power flow function includes a ramping constraint for a power generation unit.

2. Claim 9 Includes the Limitations of Claim 2

Claim 9 depends from and incorporates all of the limitations of claim 2. Accordingly, for at least the same reasons as those set forth above in connection with claim 2, it is respectfully submitted that the proposed modification of Johnson does not arrive at the invention of claim 9. Accordingly, the Board of Appeals is respectfully requested to reverse this rejection of claim 9.

3. There is No Motivation to Combine Johnson and Takriti

In the Office Action, the Examiner acknowledged that Johnson did not teach a ramping constraint but alleged that it would have been obvious to one of ordinary skill in the art to modify Johnson “to include that an input to the optimal power flow function includes a ramping constraint...” (Office Action at p. 6). The Examiner’s reasoning was that “the teachings of Johnson et al. would perform the invention as claimed by the applicant with either including a ramping constraint of a power generation unit, or not.” (Id. at p. 6). To the extent it can be understood, the Examiner’s line of reasoning is flawed and the premise upon which it is based is

not sound.

The Examiner's premise, to the extent it can be understood, appears to be that including ramping constraints as required by claim 9 is performed by Johnson, by including ramping constraints and by not including ramping constraints. Thus, Johnson includes ramping constraints by not including ramping constraints. The Examiner's premise simply is not tenable.

Moreover, the reasoning presented by the Examiner fails to provide a reason to modify Johnson with the teachings of Takriti. Specifically, the Examiner argues that because the teachings of Johnson would perform the invention of claim 8 *without* the limitations of claim 8, then one would be motivated to modify Johnson to perform just as Johnson had performed before the modification. In other words, one is motivated to modify Johnson because the modification would not modify Johnson. The Examiner has failed to explain how modification of Johnson can possibly not modify Johnson. This line of reasoning is simply not convincing or sound as required by MPEP § 2144.

Because the line of reasoning is not convincing or sound, and because the logic is based on a faulty premise, it is respectfully submitted that the Examiner has failed to provide a sufficient rationale in support of the proposed modification of Johnson with Takriti. Therefore, the Examiner has failed to present a prima facie case of obviousness for claim 9 under 35 U.S.C. 103(a). Accordingly, the Board of Appeals is respectfully requested to reverse the rejection of claim 9.

4. Conclusion as to Claim 9

For all of the above reasons, it is respectfully submitted that the Examiner has failed to present a prima facie case of obviousness for claim 9 under 35 U.S.C. 103(a). Accordingly, the

Board of Appeals is respectfully requested to reverse the rejection of claim 9.

Fifth Claim Grouping:

**Claims 10, 13 and 15 are Not Obvious
Over Johnson**

Discussion re: Patentability of Claim 10

1. Claim 10

Claim 10 recites the following limitations:

10. An energy market system associated with an energy generation and delivery system, the energy market system comprising:
 - a market interface, the market interface exchanging market information with a plurality of market participants; and
 - an energy transmission rights auction subsystem, the energy transmission rights auction subsystem providing for the exchange of energy transmission rights in accordance with the market information and in accordance with information relating to the energy generation and delivery system.

Claim 10 thus requires an energy transmission rights auction subsystem.

2. A Prima Facie Case of Obviousness Has Not Been Alleged

To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. (MPEP § 2143). Thus, the Examiner must show that the prior art teaches or suggests each limitation of claim 10 to establish a *prima facie* case of obviousness. The Examiner has not even considered all of the limitations of claim 10.

As stated above, claim 10 requires an energy transmission rights auction subsystem. The Examiner has rejected claim 10 based upon the same argument used in rejecting claims 1 and 4-5 discussed above. (Office Action at p. 2). The Examiner's remarks, however, are bereft of any discussion of the energy transmission rights auction subsystem element. The only modification

proposed by the Examiner is to “include that the energy scheduling apparatus includes an energy scheduling subsystem”. (Id at p. 3). The energy scheduling subsystem is an element in claim 1 that is distinct from the energy transmission rights auction subsystem element of claim 10. The energy scheduling subsystem is not an element in claim 10. Thus, the Examiner has failed to allege that an energy transmission rights auction subsystem is in the prior art. Therefore, the Examiner has failed to present a prima facie case of obviousness for claim 10 under 35 U.S.C. 103(a). Accordingly, the Board of Appeals is respectfully requested to reverse the rejection of claim 10.

Discussion re: Patentability of Claims 13 and 15

Claims 13 and 15 stand rejected as allegedly being obvious in view of Johnson. Claims 13 and 15 depend from and incorporate all of the limitations of claim 10. Accordingly, for at least the same reasons as those set forth above in connection with claim 10, it is respectfully submitted that the proposed modification of Johnson does not arrive at the invention of claim 13 or of claim 15. Accordingly, the Board of Appeals is respectfully requested to reverse this rejection of claims 13 and 15.

Sixth Claim Grouping:

**Claim 11 is Not Obvious
Over Johnson**

Discussion re: Patentability of Claim 11

1. Claim 11

Claim 11 recites the following limitations:

11. The energy market system of claim 10, wherein the energy transmission rights auction subsystem includes:
a case setup function, the case setup function setting up a market case in

accordance with the market information;
 a feasibility test function, the feasibility test function testing the
 feasibility of the market case and determining auction results in accordance with
 information relating to the energy generation and delivery system; and
 a post-processing function, the post-processing function providing the
 auction results to the market participants.

Claim 11 thus requires a case setup function, a feasibility test function and a post-processing function within an energy transmission rights auction subsystem.

2. Claim 11 Includes the Limitations of Claim 10

Claim 11 depends from and incorporates all of the limitations of claim 10. Accordingly, for at least the same reasons as those set forth above in connection with claim 10, it is respectfully submitted that the proposed modification of Johnson does not arrive at the invention of claim 11. Accordingly, the Board of Appeals is respectfully requested to reverse this rejection of claim 11.

3. A Prima Facie Case of Obviousness Has Not Been Made

In the Office Action, the Examiner claimed that Johnson taught the case setup function, the feasibility test function and the post-processing function citing to Johnson at column 4, line 41 through column 5, line 5. (Office Action at p. 5). The Examiner has mischaracterized Johnson.

As an initial matter, the Examiner has failed to identify where within the cited passage each of the claimed elements is taught. Moreover, the cited passage includes no discussion whatsoever of the invention of claim 11. Johnson at column 4, line 41 through column 5, line 5 discusses the creation of an exchange to which power utilities would sell their power and from which the power utilities would purchase needed power. (Johnson at column 4, lines 45-50).

There is mention of how the energy would be distributed to a purchaser. Thus, there is no mention of transmission rights, much less a transmission rights auction. It necessarily follows that the cited passage includes nothing that can reasonably be relied upon for teaching a case setup function, a feasibility test function or a post-processing function within an energy transmission rights auction subsystem as claimed. Moreover, the cited passage is void of any discussion about case setup or feasibility testing.

Therefore, Johnson does not disclose the claimed features of a case setup function, a feasibility test function or a post-processing function, and the proposed modification of the Moderator of Johnson to include an energy scheduling subsystem does not cure this defect. Therefore, the proposed modification of Johnson does not arrive at Appellant's invention of claim 11. Thus, the proposed modification of Johnson does not establish a prima facie case of obviousness under 35 U.S.C. § 103 with regard to the invention defined in claim 11. As a result, claim 11 is allowable over Johnson. Accordingly, the Board of Appeals is respectfully requested to reverse this rejection of claim 11.

4. Conclusion as to Claim 11

For all of the above reasons, it is respectfully submitted that the Examiner has failed to present a prima facie case of obviousness for claim 11 under 35 U.S.C. 103(a). Accordingly, the Board of Appeals is respectfully requested to reverse the rejection of claim 11.

Seventh Claim Grouping:**Claims 12 and 16 Are Not Obvious
Over Johnson***Discussion re: Patentability of Claim 12*1. Claim 12

Claim 12 recites the following limitations:

12. The energy market system of claim 11, wherein the feasibility test function includes:
 - a security analysis function, the security analysis function analyzing the energy generation and delivery system under one or more contingency conditions and in accordance with the market case;
 - an optimal power flow function, the optimal power flow function determining a configuration of the energy generation and delivery system so as to operate in a secure mode under none and each one of the contingency conditions; and
 - an energy rights pricing function, the energy rights pricing function determining prices for the energy transmission rights to be exchanged in accordance with the auction results.

Claim 12 thus requires a security analysis function, an optimal flow function and an energy rights pricing function within the energy transmission rights auction subsystem.

2. Claim 12 Includes the Limitations of Claim 11

Claim 12 depends from and incorporates all of the limitations of claim 11. Accordingly, for at least the same reasons as those set forth above in connection with claim 11, it is respectfully submitted that the proposed modification of Johnson does not arrive at the invention of claim 12. Accordingly, the Board of Appeals is respectfully requested to reverse this rejection of claim 12.

3. Arguments from Claim 2 Apply to Claim 12

In the Office Action, the Examiner recited the claim elements added by claim 12, and then provided citations to Johnson. (Office Action at p. 5). Specifically, the Examiner cited

column 3, line 50 through column 5, line 5, column 15, lines 32-40, and column 16, lines 53-56. (Id. at p. 5). The passages cited by the Examiner include citations relied upon the Examiner for his rejection of elements in claim 2. Specifically, the Examiner alleged that the optimal power flow function of claim 2 was found in Johnson at column 16, lines 53-56 and that the security analysis function of claim 2 was found in Johnson at column 15, lines 32-40. Thus, it appears that the Examiner intended the order of the citations to correlate to the order of the elements in claim 12. Assuming *arguendo* that the Examiner intended to allege that Johnson taught the elements claimed in claim 12, the Examiner has mischaracterized Johnson.

To the extent the Examiner intended to make the same rejection to the optimal power flow function and security analysis function of claim 12 as was made in reference to the similarly named functions of claim 2, the arguments presented above in reference to claim 2 apply to the rejection of claim 12, with the exception that claim 12 does not include the limitation of the functions being within an energy scheduling subsystem.

Therefore, Johnson does not disclose the claimed features of a optimal power flow function or a security analysis function, and the proposed modification of the Moderator of Johnson to include an energy scheduling subsystem does not cure this defect. Therefore, the proposed modification of Johnson does not arrive at Appellant's invention of claim 12. Thus, the proposed modification of Johnson does not establish a *prima facie* case of obviousness under 35 U.S.C. § 103 with regard to the invention defined in claim 12. As a result, claim 12 is allowable over Johnson. Accordingly, the Board of Appeals is respectfully requested to reverse this rejection of claim 12.

4. A Prima Facie Case of Obviousness Has Not Been Made

The remaining passage relied upon by the Examiner in the rejection of claim 12 as described above, is the passage that begins in column 3. Assuming arguendo that the Examiner intended to allege that this passage teaches an energy rights pricing function, even though the Examiner did not so state, the Examiner has mischaracterized Johnson.

The more relevant portions of the passage are found at column 3, lines 59-64, and column 4 lines 2-13. At column 3, lines 59-64, Johnson mentions that a “contract path” must be scheduled. Johnson further mentions that a regional grid controller manages one or more power grids, keeping demand on the combined grid in balance with available supply at all times. (Johnson at column 4, lines 4-7). Johnson then states that “charges for transmission of the purchased power to and from the point at which title is passed are normally borne by the seller and buyer, respectively.” (Johnson at column 4, lines 10-13).

Although the passage beginning at column 3 does mention transmission line charges, it simply does not mention anything about potential congestion on the lines, possible surcharges for use of certain transmission lines, transmission rights or the process by which transmission rights may be bought or sold between market participants. Therefore, because the passage cited by the Examiner does not even inferentially raise the subject of transmission rights, the passage cannot teach a pricing function that determines the price of those transmission rights.

Therefore, Johnson does not disclose the claimed feature of an energy rights pricing function, and the proposed modification of the Moderator of Johnson to include an energy scheduling subsystem does not cure this defect. Therefore, the proposed modification of Johnson does not arrive at Appellant’s invention of claim 12. Thus, the proposed modification of Johnson does not establish a prima facie case of obviousness under 35 U.S.C. § 103 with regard to the

invention defined in claim 12. As a result, claim 12 is allowable over Johnson. Accordingly, the Board of Appeals is respectfully requested to reverse this rejection of claim 12.

5. Conclusion as to Claim 12

For all of the above reasons, it is respectfully submitted that the Examiner has failed to present a prima facie case of obviousness for claim 12 under 35 U.S.C. 103(a). Accordingly, the Board of Appeals is respectfully requested to reverse the rejection of claim 12.

Discussion re: Patentability of Claim 16

Claim 16 stands rejected as allegedly being obvious in view of Johnson. Claim 16 depends from and incorporates all of the limitations of claim 12. Accordingly, for at least the same reasons as those set forth above in connection with claim 12, it is respectfully submitted that the proposed modification of Johnson does not arrive at the invention of claim 16. Accordingly, the Board of Appeals is respectfully requested to reverse this rejection of claim 16.

Eighth Claim Grouping:

**Claim 14 is Not Obvious
Over Johnson**

Discussion re: Patentability of Claim 12

1. Claim 14

Claim 14 recites the following limitations:

14. The energy market system of claim 10, wherein the information relating to the energy generation and delivery system includes a model of the energy generation and delivery system.

Claim 14 thus requires the information relating to the energy generation and delivery system that is used to provide for the exchange of energy transmission rights to include a model.

2. Claim 14 Includes the Limitations of Claim 10

Claim 14 depends from and incorporates all of the limitations of claim 10. Accordingly, for at least the same reasons as those set forth above in connection with claim 10, it is respectfully submitted that the proposed modification of Johnson does not arrive at the invention of claim 14. Accordingly, the Board of Appeals is respectfully requested to reverse this rejection of claim 14.

3. Johnson Does Not Disclose a Model As Claimed

In the Office Action, the Examiner alleged that Johnson taught a “method and system, wherein information relating to the energy generation and delivery system is used for optimization of energy generation and delivery” citing to Johnson at column 16, lines 53-56. (Office Action at p. 4). The Examiner then appears to claim that since Johnson taught optimization, it would be obvious to use a model to perform the optimization. (Id. at p. 4). The proposed modification does not arrive at the invention of claim 14.

Contrary to the Examiner’s characterization, the “model” element of the present claim does not recite any limitation dealing with “optimization of energy generation and delivery”. The limitation of the model element is that exchange of energy transmission rights is provided for in accordance with information that includes a model. Therefore, this element requires that a model is used in providing for the exchange of energy transmission rights. The passage cited by the Examiner does not teach a model used in providing for the exchange of energy transmission rights.

The Examiner based his rejection upon Johnson at column 16, lines 53-56, wherein

“energy usage feedback” is discussed. The definition of “energy usage feedback” is provided in the preceding section of Johnson. Specifically, the “energy usage feedback” is nothing more than an accumulation of actual meter readings. These meter readings are disclosed as being provided to the Moderator (Johnson at column 16, lines 37-41), which the Examiner has proposed to include an energy scheduling subsystem.

However, the meter readings are not used by the Moderator to provide for the exchange of energy transmission rights. Rather, the readings are merely processed and passed on, such as in a summary of the historical power consumption of a particular end user. (Id. at column 16, lines 47-50). Therefore, even assuming *arguendo* that the historical data readings can be called a “model”, it is clear that Johnson simply does not mention providing for the exchange of energy transmission rights.

Finally, the proposed modification of Johnson does not cure the defects of Johnson with respect to the “model” limitation. The Examiner has proposed “providing a model” because the teachings of Johnson “would perform the invention as claimed”. (Office Action at pages 5-6). While the Examiner’s argument is difficult to comprehend, it is clear that the proposed modification does not provide for the exchange of energy transmission rights. Therefore, regardless of the interpretation given the Examiner’s reasoning, the modification does not arrive at the invention of claim 14.

Therefore, Johnson does not disclose the claimed feature of information including a model, and the proposed modification of Johnson does not cure this defect. Therefore, the proposed modification of Johnson does not arrive at Appellant’s invention of claim 14. Thus, the proposed modification of Johnson does not establish a *prima facie* case of obviousness under 35 U.S.C. § 103 with regard to the invention defined in claim 14. As a result, claim 14 is allowable

over Johnson. Accordingly, the Board of Appeals is respectfully requested to reverse this rejection of claim 14.

4. Conclusion as to Claim 14

For all of the above reasons, it is respectfully submitted that the Examiner has failed to present a prima facie case of obviousness for claim 14 under 35 U.S.C. 103(a). Accordingly, the Board of Appeals is respectfully requested to reverse the rejection of claim 14.

Ninth Claim Grouping:

**Claims 17 and 20 Are Not Obvious
Over Johnson**

Discussion re: Patentability of Claim 17

1. Claim 17

Claim 17 recites the following limitations:

17. An energy market system associated with an energy generation and delivery system, the energy market system comprising:
 - a market user interface, the market user interface exchanging market information with a plurality of market participants;
 - an energy scheduling subsystem, the energy scheduling subsystem scheduling generation and delivery of energy among market participants in accordance with the market information and in accordance with information relating to the energy generation and delivery system, the energy scheduling subsystem further comprising a security analysis function, the security analysis function analyzing the energy generation and delivery system under one or more contingency conditions and with a set of energy generation units selected for operation, the scheduling of generation and delivery of energy based at least in part on the security analysis function.

Claim 17 thus requires an energy scheduling subsystem having a security analysis function.

2. Arguments from Claim 1 Apply to Claim 17

Claim 17 was rejected by the Examiner for the same reasons set forth above regarding

claim 2. Claim 17 includes the same energy scheduling subsystem limitation that was discussed above with respect to claim 1. Accordingly, for at least the same reasons as those set forth above in connection with claim 1, it is respectfully submitted that the the proposed modification of Johnson does not arrive at the invention of claim 17. Therefore, the Examiner has failed to present a prima facie case of obviousness for claim 17 under 35 U.S.C. 103(a). Accordingly, the Board of Appeals is respectfully requested to reverse the rejection of claim 17.

3. An Argument from Claim 2 Applies to Claim 17

Claim 17 further includes a security analysis function limitation that is the same as the security analysis function discussed above with respect to claim 2, excepting that the security analysis function of claim 17 does not include a limitation as to how the energy generation units are selected. Accordingly, for at least the same reasons as those set forth above in connection with claim 2 regarding the security analysis function of claim 2, it is respectfully submitted that the proposed modification of Johnson does not arrive at the invention of claim 17. Therefore, the Examiner has failed to present a prima facie case of obviousness for claim 17 under 35 U.S.C. 103(a). Accordingly, the Board of Appeals is respectfully requested to reverse the rejection of claim 17.

4. Conclusion as to Claim 17

For all of the above reasons, it is respectfully submitted that the Examiner has failed to present a prima facie case of obviousness for claim 17 under 35 U.S.C. 103(a). Accordingly, the Board of Appeals is respectfully requested to reverse the rejection of claim 17.

Discussion re: Patentability of Claim 20

Claim 20 stands rejected as allegedly being obvious in view of Johnson. Claim 20 depends from and incorporates all of the limitations of claim 17. Accordingly, for at least the same reasons as those set forth above in connection with claim 17, it is respectfully submitted that the proposed modification of Johnson does not arrive at the invention of claim 20. Accordingly, the Board of Appeals is respectfully requested to reverse this rejection of claim 20.

Tenth Claim Grouping:**Claim 18 is Not Obvious
Over Johnson***Discussion re: Patentability of Claim 18*1. Claim 18

Claim 18 recites the following limitations:

18. The energy market system of claim 17, wherein the information relating to the energy generation and delivery system includes a model of the energy generation and delivery system.

Claim 18 thus requires the information used by the energy scheduling subsystem to include a model of the energy generation and delivery system..

2. Claim 18 Includes the Limitations of Claim 17

Claim 18 depends from and incorporates all of the limitations of claim 17. Accordingly, for at least the same reasons as those set forth above in connection with claim 17, it is respectfully submitted that the proposed modification of Johnson does not arrive at the invention of claim 18. Accordingly, the Board of Appeals is respectfully requested to reverse this rejection of claim 18.

3. Arguments from Claim 6 Apply to Claim 18

Claim 18 was rejected by the Examiner for the same reasons set forth above regarding claim 6. Claim 18 includes the same model limitation that was discussed above with respect to claim 6. Accordingly, for at least the same reasons as those set forth above in connection with the model limitation of claim 6, it is respectfully submitted that the proposed modification of Johnson does not arrive at the invention of claim 18. Therefore, the Examiner has failed to present a prima facie case of obviousness for claim 18 under 35 U.S.C. 103(a). Accordingly, the Board of Appeals is respectfully requested to reverse the rejection of claim 18.

Eleventh Claim Grouping:

**Claim 19 is Not Obvious
Over Johnson**

Discussion re: Patentability of Claim 19

1. Claim 19

Claim 19 recites the following limitations:

19. The energy market system of claim 17, further comprising a unit commitment function that selects the set of energy generating units for selected for operation.

Claim 19 thus requires a unit commitment function.

2. Claim 19 Includes the Limitations of Claim 17

Claim 19 depends from and incorporates all of the limitations of claim 17. Accordingly, for at least the same reasons as those set forth above in connection with claim 17, it is respectfully submitted that the proposed modification of Johnson does not arrive at the invention of claim 19. Accordingly, the Board of Appeals is respectfully requested to reverse this rejection of claim 19.

3. Arguments from Claim 2 Apply to Claim 19

Claim 19 was rejected by the Examiner for the same reasons set forth above regarding claim 2. Claim 19 includes the same unit commitment function limitation that was discussed above with respect to claim 2. Accordingly, for at least the same reasons as those set forth above in connection with the unit commitment function limitation of claim 2, it is respectfully submitted that the proposed modification of Johnson does not arrive at the invention of claim 19. Therefore, the Examiner has failed to present a prima facie case of obviousness for claim 19 under 35 U.S.C. 103(a). Accordingly, the Board of Appeals is respectfully requested to reverse the rejection of claim 19.

(9) CONCLUSION

For all of the foregoing reasons, claims 1-20 are not unpatentable under 35 U.S.C. § 103, and the Board of Appeals is respectfully requested to reverse the rejection of these claims.

Respectfully submitted,
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CLAIM APPENDIX

1. An energy market system associated with an energy generation and delivery system, the energy market system comprising:
 - a market user interface, the market user interface exchanging market information with a plurality of market participants; and
 - an energy scheduling subsystem, the energy scheduling subsystem scheduling generation and delivery of energy among market participants in accordance with the market information and in accordance with information relating to the energy generation and delivery system.
2. The energy market system of claim 1, wherein the energy scheduling subsystem includes:
 - a unit commitment function, the unit commitment function selecting energy generating units for operation in the energy generation and delivery system;
 - a security analysis function, the security analysis function analyzing the energy generation and delivery system under one or more contingency conditions and with the energy generation units selected for operation; and
 - an optimal power flow function, the optimal power flow function determining a configuration of the energy generation and delivery system so as to operate in a secure mode under none and each one of the contingency conditions.
3. The energy market system of claim 1, wherein the energy scheduling subsystem schedules

generation and delivery of energy at least one of a day in advance and an hour in advance.

4. The energy market system of claim 1, wherein the market user interface exchanges market information with a plurality of market participants over a data communications network.

5. The energy market system of claim 1, wherein the market information includes demand for energy delivery and availability of energy generation.

6. The energy market system of claim 1, wherein the information relating to the energy generation and delivery system includes a model of the energy generation and delivery system.

7. The energy market system of claim 2, wherein the unit commitment function selects energy generating units for operation in each hour of a day in accordance with a study period that includes a plurality of days.

8. The energy market system of claim 2, wherein the energy scheduling subsystem includes an energy pricing function, the energy pricing function determining locational prices for the energy to be delivered.

9. The energy market system of claim 2, wherein an input to the optimal power flow function includes a ramping constraint of a power generation unit.

10. An energy market system associated with an energy generation and delivery system, the

energy market system comprising:

a market interface, the market interface exchanging market information with a plurality of market participants; and

an energy transmission rights auction subsystem, the energy transmission rights auction subsystem providing for the exchange of energy transmission rights in accordance with the market information and in accordance with information relating to the energy generation and delivery system.

11. The energy market system of claim 10, wherein the energy transmission rights auction subsystem includes:

a case setup function, the case setup function setting up a market case in accordance with the market information;

a feasibility test function, the feasibility test function testing the feasibility of the market case and determining auction results in accordance with information relating to the energy generation and delivery system; and

a post-processing function, the post-processing function providing the auction results to the market participants.

12. The energy market system of claim 11, wherein the feasibility test function includes:

a security analysis function, the security analysis function analyzing the energy generation and delivery system under one or more contingency conditions and in accordance with the market case;

an optimal power flow function, the optimal power flow function determining a

configuration of the energy generation and delivery system so as to operate in a secure mode under none and each one of the contingency conditions; and

an energy rights pricing function, the energy rights pricing function determining prices for the energy transmission rights to be exchanged in accordance with the auction results.

13. The energy market system of claim 10, wherein the market interface exchanges market information with a plurality of market participants over a data communications network.

14. The energy market system of claim 10, wherein the information relating to the energy generation and delivery system includes a model of the energy generation and delivery system.

15. The energy market system of claim 10, wherein the energy transmission rights include fixed transmission rights.

16. The energy market system of claim 12, wherein the optimal power flow function includes a security-constrained optimal power flow function.

17. An energy market system associated with an energy generation and delivery system, the energy market system comprising:

a market user interface, the market user interface exchanging market information with a plurality of market participants;

an energy scheduling subsystem, the energy scheduling subsystem scheduling generation and delivery of energy among market participants in accordance with the market information and

in accordance with information relating to the energy generation and delivery system, the energy scheduling subsystem further comprising a security analysis function, the security analysis function analyzing the energy generation and delivery system under one or more contingency conditions and with a set of energy generation units selected for operation, the scheduling of generation and delivery of energy based at least in part on the security analysis function.

18. The energy market system of claim 17, wherein the information relating to the energy generation and delivery system includes a model of the energy generation and delivery system.

19. The energy market system of claim 17, further comprising a unit commitment function that selects the set of energy generating units for selected for operation.

20. The energy market system of claim 17, wherein the energy scheduling subsystem includes an energy pricing function, the energy pricing function determining locational prices for the energy to be delivered.